

CLAIMS

1. A method for manufacturing an anisotropic magnet powder characterized in that the method comprises:

a high-temperature hydrogenation process of holding an RFeB-based alloy containing a rare earth element (hereinafter referred to as "R"), boron (B) and iron (Fe) as main ingredients in a treating atmosphere under a first treating pressure (hereinafter referred to as "P1") of which a hydrogen partial pressure ranges from 10 to 100 kPa and at a first treating temperature(hereinafter referred to as "T1") which ranges from 953 to 1133 K;

a structure stabilization process of holding said RFeB-based alloy after said high-temperature hydrogenation process in a treating atmosphere under a second treating pressure (hereinafter referred to as "P2") of which a hydrogen partial pressure is 10 kPa or more and at a second treating temperature(hereinafter referred to as "T2") which ranges from 1033 to 1213 K such that one of condition $T2 > T1$ and $P2 > P1$ is satisfied;

a controlled evacuation process of holding said RFeB-based alloy after said structure stabilization process in a treating atmosphere under a third treating pressure (hereinafter referred to as "P3") of which a hydrogen partial pressure ranges from 0.1 to 10 kPa and at a third treating temperature(hereinafter referred to as "T3") which ranges from 1033 to 1213 K, and

a forced evacuation process of removing residual hydrogen (H) from said RFeB-based alloy after said controlled evacuation process.

2. The method for manufacturing an anisotropic magnet powder as claimed in claim 1, wherein said structure stabilization process is a process satisfying one of conditions of $P2 \geq P1$, $T2 > T1$ and $P2 > P1$, $T2 \geq T1$.

3. The method for manufacturing an anisotropic magnet powder as claimed in claim 1, wherein said structure stabilization process is a process in which the upper limit of said P2 is 200 kPa.

4. The method for manufacturing an anisotropic magnet powder as claimed in claim 1, further comprising a cooling process of cooling said RFeB-based alloy after said controlled evacuation process and before said forced evacuation process.

5. The method for manufacturing an anisotropic magnet powder as claimed in claim 1, further comprising a low-temperature hydrogenation process of holding said RFeB-based alloy in a hydrogen atmosphere of which the temperature is not more than 873 K before said high-temperature hydrogenation process.

6. The method for manufacturing an anisotropic magnet powder as claimed in claim 1, further comprising

a mixing process of mixing a diffusion material containing at least one kind of elements (hereinafter referred to as "R1") consisting of dysprosium (Dy), terbium (Tb), neodymium (Nd), praseodymium (Pr), and lanthanum (La) into said RFeB-based alloy which is obtained after one of said controlled evacuation process and said forced evacuation process, thereby obtaining a

mixture powder, and

a diffusion heat treatment process of heating said mixture powder, thereby diffusing said R1 on a surface and into an inside of said RFeB-based alloy.

7. The method for manufacturing an anisotropic magnet powder as claimed in claim 6, further comprising a dehydrogenation process of removing hydrogen from said mixture powder before said diffusion heat treatment process where hydrogen residues in said mixture powder after said mixing process.